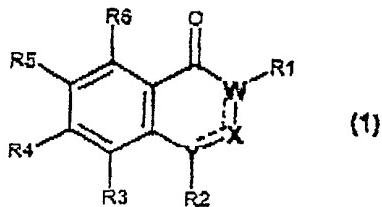


Claims

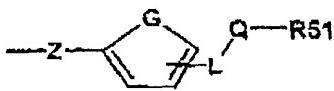
1. Compounds of general formula (I):



in which

- R¹
- (a) is an acyl group -CO-R11 or CN, whereby R11 is a saturated, unsaturated, cyclic and/or (hetero)aromatic organic radical, especially a straight or branched alkyl chain with 1-10 C atoms or a phenyl, furan or thiophene group that is optionally substituted by alkyl groups or halogen atoms,
 - (b) is a carboxylic acid ester group -CO-OR12 or a carboxylic acid amide group -CO-NR12R13 or a group -SO_X-R12 with X = 0, 1 or 2 or -SO₂-NR12R13, whereby R12 is a saturated, unsaturated, cyclic and/or (hetero)aromatic organic radical, especially a straight or branched alkyl chain with 1-10 C atoms, an aralkyl group with 7-20 C atoms, whereby the aryl radical optionally can be substituted by alkyl groups or halogen atoms or is a phenyl radical that is optionally substituted by alkyl groups or halogen atoms, and R13 can be a hydrogen atom or a straight or branched alkyl chain with 1-10 C atoms,
 - or
 - (c) is the group -A-NR14-CO-NR15R16, in which A is an alkylene group with 1-4 C atoms, especially with 1 C atom, that is optionally substituted by a C₁-C₆ alkyl

group, a carbonyl group, an oxygen atom or the group $-SO_x$ with $X = 0, 1$ or 2 ;
 R₁₄ and R₁₅, in each case independently are a hydrogen atom or a straight or
 branched alkyl chain with 1-10 C atoms, and R₁₆ is a straight or branched alkyl
 chain with 1-10 C atoms, a cycloalkyl group with 3-10 C atoms, a cycloalkylalkyl
 group with 7-20 C atoms, an aralkyl group with 7-20 C atoms, whereby the aryl
 radical optionally can be substituted by alkyl groups or halogen atoms, a phenyl
 group that is optionally substituted by alkyl groups or halogen atoms or a
 heterocyclic ring that is optionally substituted by alkyl groups or halogen atoms,
 R₂ is a group $-CH(R_{21})R_{22}$, whereby R₂₁ is a hydrogen atom, a C₁-C₁₀-alkyl group
 or an optionally substituted phenyl ring and R₂₂ is an optionally substituted
 phenyl ring or naphthyl ring, or a group $-CH_2CH(R_{23})R_{24}$, with R₂₃ and R₂₄ in
 the meaning of an optionally substituted phenyl ring,
 R₃ and R₄ in each case independently are a hydrogen atom or an alkyl group with 1-10 C
 atoms and R₃ also can be a halogen atom,
 R₅ is a group that is linked via radical Z,



in which G is $-C=C-$, $-C=N-$, $-N=C-$, an oxygen or sulfur atom, Z is a direct bond,
 an oxygen atom or a sulfur atom, the group CH-R₅₂ or $-CHR_{52}-CH-R_{53}-$,
 whereby R₅₂ and R₅₃, independently of one another, have the meaning of a
 hydrogen atom or an alkyl group and n means numbers 1 and 2, a $-C\equiv C$ -triple
 bond or an E- or Z-configured group $-CR_{52}=CR_{53}-$ or $C=CR_{52}R_{53}$, whereby
 R₅₂ and R₅₃, independently of one another, have the meaning of a hydrogen atom
 or an alkyl group, L is a CH₂ group or an NH group, Q is a carbonyl group or $-SO_x$
 group, with $X = 0, 1$ or 2 , and R₅₁ is an amino group that is optionally substituted

by an alkyl group or a straight or branched alkyl group that is optionally substituted by halogen atoms, hydroxyl or alkoxy groups, or a cycloalkyl group with 3-7 ring members that is optionally substituted by halogen atoms, hydroxyl or alkoxy groups,

R6 is the group $\text{CH}_2\text{-N}(\text{R61})\text{R62}$, whereby R61, in each case independently, is a hydrogen atom or an alkyl group, and R62 is an alkyl group or an optionally substituted aralkyl group or a heteroarylalkyl group with 7-20 C atoms, and can mean

$-\text{W}=\text{X}=\text{Y}-$ the groups



in any orientation; also all stereoisomers of the above-mentioned structures and salts thereof with physiologically compatible acids or bases.

2. Compounds according to claim 1, characterized in that $\text{W}^-\text{X}^-\text{Y}$ is the group $\text{N} - \text{C} = \text{C}$
or $\text{C} = \text{N} - \text{N}$.



3. Compounds according to claim 1 or 2,

wherein R1 is the group $-\text{CO-R11}$.

4. Compounds according to claim 3,

wherein R11 is selected from methyl, ethyl, i-propyl, phenyl, 2-thienyl and 2-furyl.

5. Compounds according to claim 1 or 2,

wherein R1 is the group $-\text{CO-OR12}$.

6. Compounds according to claim 5,

wherein R12 is selected from methyl, ethyl or i-propyl.

7. Compounds according to one of claims 1 to 6,

wherein R2 is a 2',5'-difluorobenzyl group.

8. Compounds according to one of claims 1 to 7,

wherein R3 and R4 are hydrogen atoms.

9. Compounds according to one of claims 1 to 8,

wherein Z is a direct bond or an oxygen atom.

10. Compounds according to one of claims 1 to 9,

wherein G - C = C -.

11. Compounds according to one of claims 1 to 10,

wherein L is an NH group.

12. Compounds according to one of claims 1 to 11,

wherein Q is a carbonyl group, and R51 is a C₁-C₆ alkyl group.

13. Compounds according to one of claims 1 to 12,

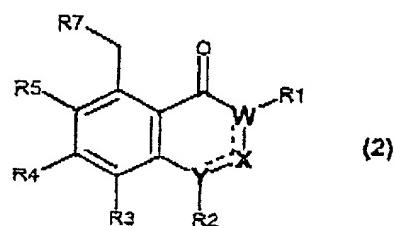
wherein R61 is a hydrogen atom or a methyl group and/or R62 is a benzyl group.

14. Use of compounds according to one of claims 1 to 13 as antagonists of the gonadotropin-releasing hormone (GnRH).

15. Use according to claim 14 for male birth control, for hormone therapy, for treating female subfertility and infertility, for female contraception and to combat tumors.

16. Process for the production of compounds of general formula (1)

(a) By reaction of a compound of general formula (2)



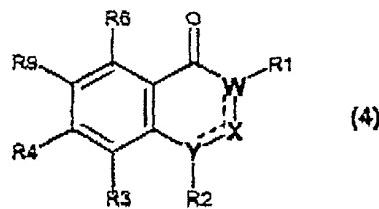
whereby R7 means a leaving group, and all other radicals have the meaning that is indicated in compound (1), with a compound of general formula (3)

R8-N(R61)R62 (3)

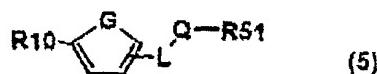
whereby R8 means a hydrogen atom or a metal atom, and R61 and R62 have the

meanings that are indicated in compound (1),

- (b) By reaction of a compound of general formula (4)

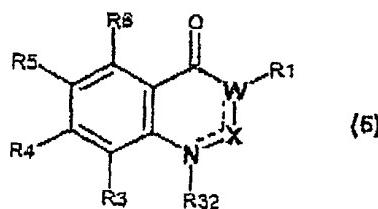


in which R9 is the group $-\text{OSO}_2\text{C}_n\text{F}_{2n+1}$, a halogen atom, especially a bromine or iodine atom, or another leaving group, and all other radicals have the meaning that is indicated in compound (1), with a compound of general formula (5)



whereby R10 is a group that contains a metal or a non-metal, a hydroxy or mercapto group that is optionally converted into a metal salt; the group $-\text{C} \equiv \text{C}-\text{R31}$ or an E- or Z-configured group $-\text{CR52} = \text{CR53R31}$ or $-\text{CR31} = \text{CR52R53}$, in which R31 is a group that contains a metal or a non-metal, and all other radicals have the meaning that is indicated in compound (1), with or without the involvement of a catalyst;

- (c) If Y is a nitrogen atom in compound (1), by reaction of a compound of general formula (6)

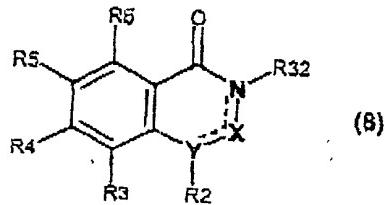


whereby R32 means a hydrogen atom or a metal atom, and all other radicals have the meaning that is indicated in compound (1), with a compound of general formula (7)

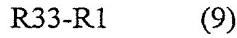


whereby R33 means a leaving group, and R2 has the meaning that is indicated in compound (1), or

- (d) If W in compound (1) is a nitrogen atom, by reaction of a compound of general formula (8)



whereby R32 means a hydrogen atom or a metal atom, and all other radicals have the meaning that is indicated in compound (1), with a compound of general formula (9)



whereby R33 means a leaving group, and R1 has the meaning that is indicated in compound (1).